

CLAIMS

The invention claimed is

1. A system to be connected to a vehicle, the vehicle having a fifth wheel plate, a driver compartment, and first and second frame members substantially parallel and extending rearwardly away from the driver compartment on either side of the fifth wheel plate, the first and second frame members each having forward portions located nearer to the driver compartment than the fifth wheel plate is to the driver compartment, the first and second frame members each having rearward portions located farther from the driver compartment than the fifth wheel plate is from the driver compartment, the system comprising:

a member with a rearward portion, a forward portion, and a mid-portion between the rearward and forward portions along a longitudinal dimension, the member having a surface on the mid-portion configured for placement on top of the fifth wheel plate when the system is in an operational position on the vehicle to allow the rearward portion to be farther from the driver compartment than the forward portion is from the driver compartment;

a first forward attachment member configured for attachment to the forward portion of the first frame member;

a second forward attachment member configured for attachment to the forward portion of the second frame member;

a first rearward attachment member configured for attachment to the rearward portion of the first frame member;

a second rearward attachment member configured for attachment to the rearward portion of the second frame member;

a first forward coupling member configured to be coupled to the forward portion of the member and configured for attachment to the first forward attachment member when the system is in the operational position on the vehicle, the first forward

coupling member having selectively adjustable length to accommodate placement of the first forward attachment member on the forward portion of the first frame member;

 a second forward coupling member configured to be coupled to the forward portion of the member and configured for attachment to the second forward attachment member when the system is in the operational position on the vehicle, the second forward coupling member having selectively adjustable length to accommodate placement of the second forward attachment member on the forward portion of the second frame member;

 a first rearward coupling member configured to be coupled to the rearward portion of the member and configured for attachment to the first rearward attachment member when the system is in the operational position on the vehicle, the first rearward coupling member having selectively adjustable length to accommodate placement of the first rearward attachment member on the rearward portion of the first frame member; and

 a second rearward coupling member configured to be coupled to the rearward portion of the member and configured for attachment to the second rearward member when the system is in the operational position on the vehicle, the second rearward coupling member having selectively adjustable length to accommodate placement of the second rearward attachment member on the rearward portion of the second frame member.

2. To be connected to the vehicle having the fifth wheel plate wherein the fifth wheel plate of the vehicle has a first length along the direction of the first and second frame members, the system of claim 1 wherein the rearward and forward portions of the member have lengths along the longitudinal dimension of the member at least as large as the first length of the fifth wheel plate.

3. To be connected to the vehicle having the fifth wheel plate wherein the fifth wheel plate has a slot, the system of claim 1 comprises a kingpin coupled to the surface on the mid-portion of the member.

4. The system of claim 1 wherein at least one of the attachment members is bolted on to one of the frame members.

5. The system of claim 1 wherein at least one of the attachment members is welded on to one of the frame members.

6. The system of claim 1 wherein at least one of the attachment members includes a two-axis joint.

7. The system of claim 1 wherein the member includes an I-beam structure.

8. The system of claim 1 wherein at least one of the coupling members includes a dual rod connector.

9. The system of claim 1 wherein at least one of the coupling members includes a length of chain.

10. The system of claim 1 wherein one of the attachment members includes a cross structure that spans between the first and second frame members.

11. The system of claim 1 comprising an engagement assembly configured to be removably coupled to a second vehicle, the rearward portion of the member being coupled to the engagement assembly.

12. The system of claim 11 wherein the rearward portion of the member is coupled to the engagement assembly through at least a piston of a hydraulic cylinder and a rod affixed to a bracket.

13. A system to be connected to a vehicle, the vehicle having a fifth wheel plate, a driver compartment, and first and second frame members substantially parallel and extending rearwardly away from the driver compartment on either side of the fifth wheel plate, the first and second frame members each having rearward portions located farther from the driver compartment than the fifth wheel plate is from the driver compartment, the system comprising:

an member with a rearward portion and a mid-portion along a longitudinal dimension, the member having a surface on the mid-portion configured for placement on top of the fifth wheel plate when the system is in an operational position on the vehicle to allow the rearward portion to be farther from the driver compartment than the mid-portion portion is from the driver compartment;

a first rearward attachment member configured for attachment to the rearward portion of the first frame member;

a second rearward attachment member configured for attachment to the rearward portion of the second frame member;

a first rearward coupling member configured to be coupled to the rearward portion of the member and configured for attachment to the first rearward attachment member when the system is in the operational position on the vehicle, the first rearward coupling member having selectively adjustable length to accommodate placement of the first rearward attachment member on the rearward portion of the first frame member; and

a second rearward coupling member configured to be coupled to the rearward portion of the member and configured for attachment to the second rearward member when the system is in the operational position on the vehicle, the second rearward coupling member having selectively adjustable length to accommodate placement of the second rearward attachment member on the rearward portion of the second frame member.

14. The system of claim 13 comprising an engagement assembly configured to be removably coupled to a second vehicle, the rearward portion of the member being coupled to the engagement assembly.

15. The system of claim 13 wherein at least one of the attachment members includes a two-axis joint.

16. The system of claim 13 wherein at least one of the coupling members includes a dual rod connector.

17. A system to be connected to a vehicle having a frame and a fifth wheel plate, the system comprising:

an member with a longitudinal dimension with a rearward portion, a forward portion, and a mid-portion between the rearward and forward portions, the member having a surface on the mid-portion configured for placement on top of the fifth wheel plate when the system is in an operational position on the vehicle to allow the rearward portion to be farther from the driver compartment than the forward portion is from the driver compartment;

a plurality of attachment members configured for attachment to the vehicle frame; and

a plurality of coupling members each configured to be coupled to one of the forward and rearward portions of the member and each configured for attachment to one of the attachment members, the coupling members having selectively adjustable length to accommodate placement of the attachment members on the vehicle frame.

18. The system of claim 17 comprising an engagement assembly configured to be removably coupled to a second vehicle, the rearward portion of the member being coupled to the engagement assembly.

19. The system of claim 17 wherein at least one of the attachment members includes a two-axis joint.

20. The system of claim 17 wherein at least one of the coupling members includes a dual rod connector.

21. A method comprising:

providing a member with a longitudinal dimension with a rearward portion, a forward portion, and a mid-portion between the rearward and forward portions, positioning a surface on the mid-portion of the member on top of a fifth wheel plate of a vehicle having a driver compartment and a frame to allow the rearward portion to be farther from the driver compartment than the forward portion is from the driver compartment;

attaching a plurality of attachment members to the vehicle frame; and coupling each of a plurality of coupling members to one of the forward and rearward portions of the member and to one of the plurality of attachment members; and

adjusting length of each of the coupling members to accommodate placement of the attachment members attached to the vehicle frame.